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Title: Barrier and Window for an Optics Head

ABSTRACT

Windows for infrared Mid-IR optical systems include thin film materials stretched over a rigid frame. The windows form a barrier between sensitive optics in an optic head and damaging elements of weather and environment. Windows and methods for making windows for free space optics communications systems include use of specialized materials and structural components to form durable inexpensive barriers in agreement with these inventions. Barriers can be used to provide protection of optics contained in an optical transceiver from an atmosphere composed of matter hostile to optics elements. The barrier can operate in conjunction with an enclosure housing to form a complete barrier between those optics and that atmosphere. These windows may be removable from the housing for replacement or maintenance. Advanced versions of these windows may also include specialized condensation prevention means. These windows are particularly characterized by their large area aperture and ability to pass middle infrared, Mid-IR, optical radiation without excessive attenuation. This is partly realized by way of special handling in the formation of the windows. In addition, these windows are quite inexpensive to manufacture, they have exceptional lifetimes and can be formed to be replaceable at the expiration of their useful lifetime.